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DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

National Institute of Biomedical Imaging and Bioengineering (NIBIB)

Announcement of Requirements and Registration for the 2015 Design by

Biomedical Undergraduate Teams (DEBUT) Challenge

Authority: 15 U.S.C. 3719

SUMMARY: The National Institute of Biomedical Imaging and Bioengineering (NIBIB) Design by Biomedical Undergraduate Teams (DEBUT) Challenge is open to teams of undergraduate students working on projects that develop innovative solutions to unmet health and clinical problems. NIBIB's mission is to improve health by leading the development and accelerating the application of biomedical technologies. The goals of the DEBUT Challenge are 1) to provide undergraduate students valuable experiences such as working in teams, identifying unmet clinical needs, and designing, building and debugging solutions for such open-ended problems; 2) to generate novel, innovative tools to improve healthcare, consistent with NIBIB's purpose to support research, training, the dissemination of health information, and other programs with respect to biomedical imaging and engineering and associated technologies and modalities with biomedical

applications; and 3) to highlight and acknowledge the contributions and accomplishments of undergraduate students.

DATES: The competition begins [**FEDERAL REGISTER PLEASE INSERT THE DATE OF PUBLICATION**].

Submission Period: March 16, 2015 to May 29, 2015, 11:59 PM EDT.

Judging Period: June 8 2015 to August 7, 2015

Winners announced: August 21, 2015

Award ceremony: October 9, 2015, Biomedical Engineering Society
Conference, Tampa Florida

FOR FURTHER INFORMATION CONTACT: info@nibib.nih.gov or (301) 451-4792.

SUPPLEMENTARY INFORMATION:

Subject of Challenge Competition: The NIBIB DEBUT Challenge solicits design projects that develop innovative solutions to unmet health and clinical problems. Areas of interest for the biomedical engineering projects include, but are not limited to: diagnostics, therapeutics, technologies for underserved populations and low resource settings, point-of-care systems, precision medicine, preventive medicine, and technologies to aid individuals with disabilities.

Rules:

1. Who can win: To be eligible to win a prize under this challenge, an individual on the Student Team must
 - a) Be a citizen or permanent resident of the United States; and
 - b) Meet all the conditions below for eligibility to compete under this challenge.
2. Who can compete: This is a team challenge. To be eligible to compete in this challenge, an individual must :
 - a) Be an undergraduate student enrolled full-time in an undergraduate curriculum during at least one full semester (or quarter if the institution is on a quarter system) of the 2013-2015 academic year;
 - b) Form or join a “Student Team” with at least two other individuals for the purpose of developing an entry for submission to this challenge. Each student on the Student Team must satisfy all the requirements for competing in this challenge. While it is expected that most of the individuals participating in the competition may be students from biomedical engineering departments, interdisciplinary teams including students from other fields are welcome and encouraged;
 - c) Acknowledge understanding and acceptance of the DEBUT challenge rules by signing the [NIBIB DEBUT Challenge Certification Form](https://www.nibib.nih.gov/sites/default/files/NIBIB%20DEBUT%20Certification%20Form.pdf) found at <https://www.nibib.nih.gov/sites/default/files/NIBIB%20DEBUT%20Certification%20Form.pdf>. Each entry must include one NIBIB DEBUT Challenge Certification Form, completed with: the printed names of Student Team members, an indication of whether the team member is either a US citizen or

permanent resident (as opposed to a foreign student on a visa), and be signed and dated by each individual member of the Student Team. Entries that do not provide a complete Certification Form will be disqualified from the challenge;

- d) Be 13 years of age or older.
- e) Not be a Federal employee acting within the scope of their employment.

Federal employees seeking to participate in this challenge outside the scope of their employment should consult their ethics official prior to developing a submission; and

- f) Comply with all the requirements under this section (Section 2).

3. Foreign students who are studying in the United States on a visa are eligible to be part of the competing Student Teams. However, they will not receive a monetary prize if they are part of a winning Student Team. See Prize section below for the distribution of prizes. As acknowledgement of their participation, however, the names of foreign students who are part of winning Student Teams will be listed among the winning team members when results are announced and at the award ceremony.
4. By participating in this challenge, each individual agrees to abide by all rules of this challenge.
5. Each entry into this challenge must have been conceived, designed, and implemented by the Student Team. Student Teams participating in capstone design projects are especially encouraged to enter the challenge.
6. Each Student Team may submit only one entry into this challenge through one member of the Student Team appointed as “Team Captain” by that Student Team.

The Team Captain will carry out all correspondence regarding the Student Team's entry. The Team Captain must be a citizen or permanent resident of the United States.

7. The Team Captain will submit a Student Team's entry on behalf of the Student Team by following the links and instructions at <http://www.nibib.nih.gov/training-careers/undergraduate-graduate/design-biomedical-undergraduate-teams-debut-challenge/> and certify that the entry meets all the challenge rules.
8. Each entry must comply with Section 508 standards that require federal agencies' electronic and information technology be accessible to people with disabilities, <http://www.section508.gov/>.
9. Individuals who are younger than 18 must have their parent or legal guardian complete the [Parental Consent Form](https://www.nibib.nih.gov/sites/default/files/Parental%20Consent%20Form.pdf) found at <https://www.nibib.nih.gov/sites/default/files/Parental%20Consent%20Form.pdf>.
10. Each entry must be submitted as a single pdf file and must include the following:
 - Sponsor letter, on department letterhead, from a faculty member from the Biomedical Engineering, Bioengineering or similar department of the institution in which the Student Team members are enrolled, verifying a) that the entry was achieved by the named Student Team, b) that each member of the team was enrolled full-time in an undergraduate curriculum during at least one semester or quarter of the academic year 2014-2015, and c) describing clearly any contribution from the advisor or any other individual outside the Student Team (especially when the submitted entry is part of a bigger/ongoing project, the

specific components designed and implemented by the competing Student Team must be clarified and distinguished from those accomplished by others).

- The [NIBIB DEBUT Challenge Certification Form](https://www.nibib.nih.gov/sites/default/files/NIBIB%20DEBUT%20Certification%20Form.pdf) (downloadable from <https://www.nibib.nih.gov/sites/default/files/NIBIB%20DEBUT%20Certification%20Form.pdf> completed with the printed names, indication of U.S. citizenship or permanent residency, dates, and signatures of each individual member of the Student Team.
- Completed [Cover Page](https://www.nibib.nih.gov/sites/default/files/NIBIB%20DEBUT%20Cover%20Page.pdf) (downloadable from <https://www.nibib.nih.gov/sites/default/files/NIBIB%20DEBUT%20Cover%20Page.pdf> listing project title and team member information.
- Project Description (not to exceed 6 pages using Arial font and a font size of at least 11 points) that includes the following 4 sections:
 - 1) Abstract
 - 2) Description of clinical need or problem, including background and current methods available
 - 3) Design, including a discussion of the innovative aspects
 - 4) Evidence of a working prototype (results/graphics obtained with the designed solution)

When the submitted entry is part of a bigger/ongoing project, the specific components designed and implemented by the competing Student Team must be clarified and distinguished from those accomplished by others (eg. other students, advisor, collaborators).

The 6-page limit includes any graphics, but excludes the cover page, certification form, parental consent form, and any references. Submissions exceeding 6 pages for the Project Description will not be accepted. An optional 3-minute video displaying the operation of the device/method may be included. However, the 6-page Project Description must be a stand-alone explanation of the project.

- A completed [Parental Consent Form](https://www.nibib.nih.gov/sites/default/files/Parental%20Consent%20Form.pdf), accessible at <https://www.nibib.nih.gov/sites/default/files/Parental%20Consent%20Form.pdf>, for each individual on the Student Team who is under the age of 18.

11. NIBIB will claim no rights to intellectual property. Individuals on the Student Team will retain intellectual property ownership as applicable arising from their entry. By participating in this challenge, such individuals grant to NIBIB an irrevocable, paid-up, royalty-free, nonexclusive worldwide license to post, link to, share, and display publicly the entry on the Web, newsletters or pamphlets, and other information products. It is the responsibility of the individuals on the Student Team to obtain any rights necessary to use, disclose, or reproduce any intellectual property owned by third parties and incorporated in the entry for all anticipated uses of the entry.
12. All entries must be submitted by the challenge deadline, May 29, 2015, 11:59 PM EDT. Entries must not infringe upon any copyright or any other rights of any third party.
13. By participating in this challenge, each individual agrees to assume any and all risks and waive claims against the Federal Government and its related entities, except in the case of willful misconduct, for any injury, death, damage, or loss of property,

revenue, or profits, whether direct, indirect, or consequential, arising from participation in this prize challenge, whether the injury, death, damage, or loss arises through negligence or otherwise.

14. Based on the subject matter of the challenge, the type of work that it will possibly require, as well as an analysis of the likelihood of any claims for death, bodily injury, or property damage, or loss potentially resulting from challenge participation, individuals are not required to obtain liability insurance or demonstrate financial responsibility in order to participate in this challenge.
15. By participating in this challenge, each individual agrees to indemnify the Federal Government against third party claims for damages arising from or related to challenge activities.
16. An individual shall not be deemed ineligible because the individual used Federal facilities or consulted with Federal employees during this challenge if the facilities and employees are made available to all individuals participating in the challenge on an equitable basis.
17. NIBIB reserves the right to cancel, suspend, modify the challenge, and/or not award a prize if no entries are deemed worthy.

Prize: The 1st, 2nd, and 3rd place prizes will be \$20,000, \$15,000, and \$10,000, respectively, to be distributed only among the members of the winning Student Team eligible to win a prize in this challenge. The prize will be distributed equally among the prize-eligible Student Team members, i.e., students who are either citizens or permanent residents of the United States. Each prize-eligible member of the winning Student Teams

must provide his/her bank information to enable electronic transfer of funds. Six honorable mentions will also be awarded, without an accompanying monetary prize.

Winning Student Teams will be honored at the NIBIB DEBUT Award Ceremony during the 2015 Annual Meeting of the Biomedical Engineering Society (BMES) in Tampa, Florida on October 9, 2015. Updated information on the BMES annual meeting can be found at <http://bmes.org/annualmeeting>. NIBIB will not provide financial support for winning Student Teams or Honorable Mention awardees to attend the award ceremony. However they are welcome and encouraged to attend the award ceremony, or designate a representative to attend on their behalf.

Basis upon Which Winner Will Be Selected: The winning entries will be selected based on the following criteria:

- Significance of the problem addressed— Does the entry address an important problem or a critical barrier to progress in clinical care or research?
- Impact on potential users and clinical care—How likely is it that the entry will exert a sustained, powerful influence on the problem and medical field addressed?
- Innovative design (creativity and originality of concept)—Does the entry utilize novel theoretical concepts, approaches or methodologies, or instrumentation?
- Working prototype that implements the design concept and produces targeted results—Has evidence been provided (in the form of results, graphs, photographs, films, etc.) that a working prototype has been achieved?

Additional Information: For more information and to submit entries, visit
<http://www.nibib.nih.gov/training-careers/undergraduate-graduate/design-biomedical-undergraduate-teams-debut-challenge/>.

The NIBIB prize-approving official will be the Director of NIBIB. Prizes will be paid using electronic funds transfer and may be subject to federal income taxes. NIH will comply with the Internal Revenue Service (IRS) withholding and reporting requirements, where applicable.

Dated: February 27, 2015

Roderic I. Pettigrew, Ph.D, M.D.

Director

National Institute of Biomedical Imaging and Bioengineering

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